



PATENT
650.00547

AF/17248

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) METHOD AND SYSTEM FOR
AKIHIRO NAGATA ET AL.) TREATING A POWER TRANS-
Serial No.: 09/008,675) MISSION BELT/BELT SLEEVE
Filed: January 16, 1998) Group Art Unit: 1724
Examiner: R. Hopkins

10/13
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183

APPELLANT'S BRIEF

Assistant Commissioner for Patents
Washington, D.C. 20231
Sir:

REAL PARTY IN INTEREST

The real party in interest is Mitsuboshi Belting Ltd., the assignee of all right, title, and interest in and to the above-identified invention.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences, known to appellant, the appellant's legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

37 CFR 1.8
CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C.20231, on 6-19, 2000.

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STATUS OF CLAIMS

Claims 1-26 are pending in the application. Claims 11, 12 and 18-20 are allowed. The January 18, 2000 final rejection of claims 1-10, 13-17 and 21-26 is appealed herein.

STATUS OF AMENDMENTS

No amendment has been filed subsequent to the January 18, 2000, final rejection.

SUMMARY OF INVENTION

The invention is directed to both a method of treating a power transmission belt/belt sleeve 10 and a treating system including the belt/belt sleeve 10. The terminology "belt/belt sleeve" is used in that the invention can be practiced in similar fashion on individual belts or on a belt sleeve from which more than one belt is cut.

The Method

The method involves the treatment of a power transmission belt/belt sleeve 10 having an endless body 30 with a length extending around an axis 28 (see specification, page 8, lines 12-20; page 9, lines 18-21, and Figs. 2 and 3). The belt/belt sleeve body 30 has a radially outwardly facing surface 34 (see

specification, page 10, lines 15-17 and Figs. 2 and 3). According to the method, at least one sheet of vapor-impervious film 32 is wrapped against and around the radially outwardly facing surface 34 of the belt/belt sleeve body 30 with the belt sleeve on a support 12 (see specification, pages 8, lines 19 and 20; page 10, lines 15-17, and Figs. 2 and 3). The method further includes the step of vulcanizing the belt/belt sleeve 10 with the at least one sheet of vapor-impervious film 32 wrapped around the belt/belt sleeve body 30 (see specification, page 12, line 6-page 13, line 2, and Fig. 5).

In one form, the belt/belt sleeve body 30 has axially spaced, axially oppositely facing ends 40, 42 and the film 32 is wrapped over at least part of each of the axially spaced, axially oppositely facing ends 40, 42 (see specification, page 11, lines 1-4, and Fig. 3).

The film 32 may be a synthetic resin film (see specification, page 11, lines 16-22).

In one form, the vapor-impervious film is one of polymethylpentene and polyvinyl chloride (see specification, page 11, lines 16-19).

In one form, the wrapping step involves wrapping the at least one sheet of vapor-impervious film 32 spirally around the radially outwardly facing surface

34 of the belt/belt sleeve body 30 (see specification, page 10, lines 15-19, and Fig. 2).

In one form, the belt/belt sleeve 10 is mounted on a mold/drum/support 12 and vulcanization is carried out with the belt/belt sleeve 10 mounted on the mold/drum/support 12 (see specification, page 12, lines 6-8 and Fig. 5).

In one form, after completion of vulcanization, the at least one sheet of vapor-impervious film 32 is removed from the belt/belt sleeve body 30 (see specification, page 14, lines 5-8).

In one form, after removing the vapor-impervious film, the radially outwardly facing surface 34 of the belt/belt sleeve body 30 is treated, as by grinding (see specification, page 14, line 15-page 15, line 8, and Fig. 6).

In one form, the grinding process produces multiple grooves 146 with ribs 152 therebetween (see specification, page 17, lines 3-5 and Fig. 8).

In another form, the method may be used to form alternating grooves 170 and teeth 164 along the length of the belt/belt sleeve 168 at the inside surface thereof (see specification, page 17, lines 12-15, and Figs. 9 and 10).

The Treating System

The treating system consists of the combination of a) the belt/belt sleeve 10 with the endless body 30 having the radially outwardly facing surface 34; b) at least one sheet 32 of vapor-impervious film against and extending around the radially outward facing surface 34 of the belt/belt sleeve body 30; and a vulcanizing vessel 50 in which the belt/belt sleeve 10 with the at least one sheet of vapor-impervious film 32 thereon resides on which a vulcanization process can be carried out (see specification, page 12, lines 6-10, and Fig. 5).

The treating system is claimed with variations in the belt/belt sleeve 10 and at least one sheet of vapor-impervious film, as described above.

Additionally, in one form, the sheet of vapor-impervious film 32 has a width that is greater than the axial length of the outwardly facing surface 34 of the belt/belt sleeve body 30 (see specification, page 11, lines 11-15 and Fig. 3).

In another form, there are 2-4 layers of vapor-impervious film used (see specification, page 11, lines 8-10 , and Fig. 2).

ISSUES

1. Whether claims 1, 3-6, 10, 13, 14, 16, 17, 21, 24 and 25 are anticipated under 35 U.S.C. 102 by U.S. Patent No. 3,031,364 (Perkins).

2. Whether claims 2, 15, 23 and 26 are obvious under 35 U.S.C. 103 over Perkins.

3. Whether claims 7-9 and 22 are obvious under 35 U.S.C. 103 over Perkins in view of U.S. Patent No. 5,192,382, to Hamura et al. (Hamura).

GROUPING OF CLAIMS

The claims in each of the three groups of claims, set forth in 1-3, above, do not stand or fall together.

ARGUMENT

ISSUE NO. 1

Claim 1

Claim 1 is directed to a method of treating a power transmission belt/belt sleeve of the type having an endless body with a length extending around an axis, a radially inwardly facing surface, and a radially outwardly facing surface. The method includes the steps of wrapping at least one sheet of vapor-impervious film against and around the radially outwardly facing surface of the belt/belt sleeve body with the belt/belt sleeve on a support and vulcanizing the belt/belt sleeve with the at least one sheet of vapor-impervious film wrapped around the belt/belt sleeve body.

Perkins does not teach or suggest the wrapping of at least one sheet of vapor-impervious film against and around the radially outwardly facing surface of a belt/belt sleeve body.

Perkins describes in column 3, lines 50-63, two distinct elements which are extended around a belt/belt sleeve. The first of these is a "pressure-wrap" at 20 (line 55). The second element is "an airtight heat resistant bag or envelope for the belt" (line 59).

The pressure wrap 20 is defined as either "wet cotton or nylon wrappers" (line 53). This material is wrapped helically as shown in Figs. 1 and 2 so as to "envelop[e] the wound belt carcass B under pressure" (lines 55-56).

A fair reading of this description is that the pressure wrap 20 maintains the integrity of the belt carcass B. There is no express teaching that the wrap produces a vapor-impervious film.

The second element is characterized as "butyl rubber, Mylar or similar material producing an airtight heat resistant bag or envelope for the belt" (line 58 and 59). While this material might fairly be classified as vapor-impervious, the material is not wrapped, but is instead in the form of a "bag or envelope" which is "collapsed around" the belt carcass B placed therewithin.

The fact that the pressure wrap is not intended to be vapor impervious is borne out by Perkins' own teachings. Perkins states, in referring to the non-wrapped bag/envelope, that, "This alternate method may be used in substitution or in conjunction with the pressure wrap 20."

If the pressure wrap 20 produced a sealing film, the use of the bag or envelope would be redundant and superfluous. Implicitly, one skilled in this art would recognize that the carcass B is not sealed by the pressure wrap 20.

In short, the gist of Perkins' description is that the pressure wrap is used for integrity with the airtight, heat resistant bag or envelope used to seal the belt carcass B.

Consequently, Perkins does not anticipate claim 1.

Claims 3-6

Claims 3-6 depend cognately from claim 1 and recite vulcanizing, film removal, and surface treatment steps which are carried out by Perkins, with the exception that Perkins does not have a wrapped, vapor-impervious film to remove.

Claim 10

Claim 10 depends from claim 1 and recites the step of wrapping a synthetic resin, vapor-impervious film against and around the radially outwardly facing surface of the belt/belt sleeve body. Perkins does not teach or suggest a synthetic resin, vapor-impervious film wrapped around a belt/belt sleeve.

Claim 13

Claim 13 depends from claim 1 and recites a spiral wrapping step. Perkins does teach a spiral wrapping step, but does not use a vapor-impervious film as claimed.

Claim 14

Claim 14 is directed to a treating system comprising a support, a belt/belt sleeve having an endless body on the support, with the body having a length extending around an axis and radially inwardly and outwardly facing surfaces, at least one sheet of vapor-impervious film against and surrounding a radially outwardly facing surface of the belt/belt sleeve body, and a vulcanizing vessel in which the belt/belt sleeve with the at least one sheet of

vapor-impervious film thereon resides and in which a vulcanization process can be carried out.

The arguments advanced relative to claim 1, above, apply equally to claim 14 with the only distinction being that the belt and film combination are placed in a vessel in which vulcanization can be carried out.

Claim 16

Claim 16 depends from claim 14 and recites a mold on which the belt/belt sleeve body is mounted. Perkins discloses the use of a mold.

Claim 17

Claim 17 depends from claim 14 and characterizes the at least one sheet of vapor-impervious film as comprising a synthetic resin. Perkins does not teach a synthetic resin material that is used as a vapor-impervious film.

Claim 21

Claim 21 depends from claim 14 and characterizes the vapor-impervious film as spirally wrapped around the radially outwardly facing surface of the

belt/belt sleeve body. As noted above, the pressure wrap in Perkins which is spirally wrapped is not a vapor-impervious film, as claimed.

Claim 24

Claim 24 depends from claim 14 and recites 2-4 layers of vapor-impervious film over the outwardly facing surface of the belt/belt sleeve body. Only the pressure wrap in Perkins is wrapped in multiple layers. The layer in Perkins, which is arguably vapor-impervious, is in the form of a bag or envelope.

Claim 25

Claim 25 depends from claim 14 and characterizes the vapor-impervious film as a synthetic resin film.

ISSUE NO. 2

Claim 2

Claim 2 characterizes the belt/belt sleeve body as having axially spaced, axially facing ends, with the step of wrapping comprising the step of wrapping at least one sheet of vapor-impervious film over at least part of each of the axially spaced, axially facing ends of the belt/belt sleeve body.

Perkins does not show the spirally wrapped pressure wrap 20 over the corresponding, axially facing ends, as claimed. Since Perkins does not use the spirally wrapped pressure wrap 20 to produce a vapor-impervious film, there is no need to wrap the material over at least part of each of the ends as claimed. This further supports the appellant's position that the pressure wrap in Perkins is for integrity and not to produce a vapor-impervious layer.

Claim 15

Claim 15 depends from claim 14 and includes limitations similar to those in claim 2, in relation to the system as opposed to the method.

Claim 23

Claim 23 depends from claim 14 and characterizes the vapor-impervious film as having a width that is greater than the axially length of the outwardly facing surface of the belt/belt sleeve body. The pressure wrap is not vapor-impervious and, as seen in Fig. 1 of Perkins, has a width significantly less than the axial length of the outwardly facing surface of the belt/belt sleeve body. Even if one were to improperly consider the pressure wrap to be vapor-

impervious, it would defeat the purpose of the wrapping and cross-wrapping for integrity in Perkins to make this element as a one-piece wrap.

If the bag or envelope is viewed as the vapor-impervious layer, the same is not wrapped around the radially outwardly facing surface of the belt/belt sleeve body as claimed.

Claim 26

Claim 26 depends from claim 25 and more particularly characterizes the nature of the vapor-impervious film.

ISSUE NO. 3

Claims 7-9

Claims 7-9 depend cognately from claim 1 and recite specific grinding steps after vulcanization to produce ribs and teeth.

Claim 22

Claim 22 depends from claim 14 and recites alternating grooves and teeth on the belt/belt sleeve body.

Hamura, while teaching grinding to form ribs, does not teach or suggest the structure in the independent claims, from which claims 7-9 and 22 depend, as described above to be lacking in Perkins.

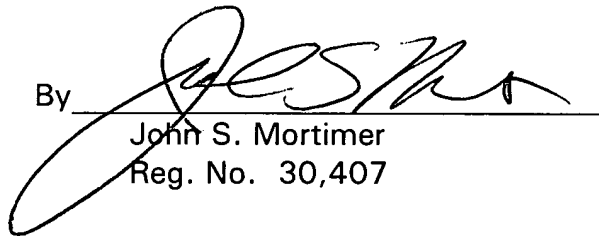
CONCLUSION

Neither Perkins nor Hamura, either alone or in combination, teaches or suggests either a method or treating system, as claimed. Accordingly, the rejection of claims 1-10, 13-17 and 21-26 should be reversed. Such action is respectfully requested.

Respectfully submitted,

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By



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APPENDIX

1. A method of treating a power transmission belt/belt sleeve of the type having an endless body with a length extending around an axis and a radially inwardly facing surface and a radially outwardly facing surface, said method comprising the steps of:

wrapping at least one sheet of vapor-impervious film against and around the radially outwardly facing surface of the belt/belt sleeve body with the belt/belt sleeve on a support; and

vulcanizing the belt/belt sleeve with the at least one sheet of vapor-impervious film wrapped around the belt/belt sleeve body.

2. The method of treating a power transmission belt/belt sleeve according to claim 1 wherein the belt/belt sleeve body has axially spaced, axially facing ends and the step of wrapping comprises the step of wrapping at least one sheet of vapor-impervious film over at least part of each of the axially spaced, axially facing ends of the belt/belt sleeve body.

3. The method of treating a power transmission belt/belt sleeve according to claim 1 further including the step of mounting the belt/belt sleeve on a mold and the step of vulcanizing comprises the step of vulcanizing the belt/belt sleeve with the belt/belt sleeve mounted on the mold.

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4. The method of treating a power transmission belt/belt sleeve according to claim 1 further including the step of removing the at least one sheet of vapor-impervious film from the belt/belt sleeve body after vulcanizing the belt/belt sleeve.

5. The method of treating a power transmission belt/belt sleeve according to claim 4 including the step of treating the radially outwardly facing surface of the belt/belt sleeve body after removing the at least one sheet of vapor-impervious film.

6. The method of treating a power transmission belt/belt sleeve according to 5 wherein the step of treating comprises the step of grinding the radially outwardly facing surface of the belt/belt sleeve body.

7. The method of treating a power transmission belt/belt sleeve according to claim 6 wherein the step of grinding comprises the step of grinding at least two grooves in the belt/belt sleeve body through the radially outwardly facing surface to define at least one V-shaped rib extending along the length of the belt/belt sleeve body.

8. The method of treating a power transmission belt/belt sleeve according to claim 1 including the step of forming alternating grooves and teeth along the length of the belt/belt sleeve body.

9. The method of treating a power transmission belt/belt sleeve according to claim 8 wherein the step of forming alternating grooves and teeth comprises the step of forming alternating grooves and teeth at the radially inwardly facing surface of the belt/belt sleeve body and further including the steps of removing the at least one sheet of vapor-impervious film from the belt/belt sleeve body after vulcanizing the belt/belt sleeve and grinding the radially outwardly facing surface of the belt/belt sleeve body after removing the at least one sheet of vapor-impervious film.

10. The method of treating a power transmission belt/belt sleeve according to claim 1 wherein the step of wrapping at least one sheet of vapor-impervious film comprises the step of wrapping at least one sheet of vapor-impervious film that comprises synthetic resin.

13. The method of treating a power transmission belt/belt sleeve according to claim 1 wherein the step of wrapping comprises the step of wrapping the at least one sheet of vapor-impervious film spirally around the radially outwardly facing surface of the belt/belt sleeve body.

14. A treating system comprising:
a support;

a belt/belt sleeve having an endless body on the support, the body having a length extending around an axis and a radially inwardly facing surface and a radially outwardly facing surface;

at least one sheet of vapor-impervious film against and extending around the radially outwardly facing surface of the belt/belt sleeve body; and

a vulcanizing vessel in which the belt/belt sleeve with the at least one sheet of vapor-impervious film thereon resides and in which a vulcanization process can be carried out.

15. The treating system according to claim 14 wherein the belt/belt sleeve body has axially spaced, axially facing ends and the at least one sheet of vapor-imperious film extends at least partially over the axially spaced, axially facing ends of the belt/belt sleeve body.

16. The treating system according to claim 14 further comprising a mold on which the belt/belt sleeve body is mounted.

17. The treating system according to claim 14 wherein the at least one sheet of vapor-impervious film comprises a synthetic resin.

21. The treating system according to claim 14 wherein the at least one sheet of vapor-impervious film is spirally wrapped around the radially outwardly facing surface of the belt/belt sleeve body.

22. The treating system according to claim 14 wherein the radially inwardly facing surface of the belt/belt sleeve body has alternating grooves and teeth along the length of the belt/belt sleeve body.

23. The treating system according to claim 14 wherein the radially outwardly facing surface of the belt/belt sleeve body has an axial length and the sheet of vapor-impervious film has a width that is greater than the axial length of the outwardly facing surface of the belt/belt sleeve body.

24. The treating system according to claim 14 wherein there are 2-4 layers of vapor-impervious film over the outwardly facing surface of the belt/belt sleeve body.

25. The treating system according to claim 14 wherein the vapor-impervious film is a synthetic resin film.

26. The treating system according to claim 25 wherein the vapor-impervious film is one of polymethylpentene and polyvinyl chloride.